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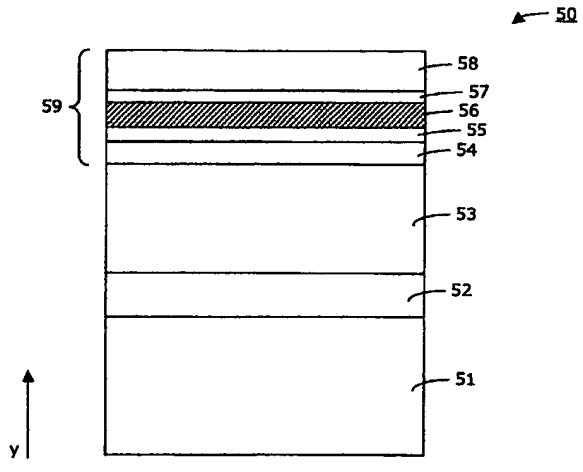
(54) Title: FORMATION OF THIN SEMICONDUCTOR LAYERS BY LOW-ENERGY PLASMA ENHANCED CHEMICAL VAPOR DEPOSITION AND SEMICONDUCTOR HETEROSTRUCTURE DEVICES



(57) Abstract: Method for forming a highly relaxed epitaxial semiconductor layer (52) with a thickness between 100nm and 800nm in a growth chamber. The method comprises the steps: - providing a substrate (51) in the growth chamber on a substrate carrier,- maintaining a constant substrate temperature (T_s) of the substrate (51) in a range between 350°C and 500°C,- establishing a high-density, low-energy plasma in the growth chamber such that the substrate (51) is being exposed to the plasma,- directing Silane gas (SiH_4) and Germane gas (GeH_4) through the gas inlet into the growth chamber, the flow rates of the Silane gas and the Germane gas being adjusted in order to form said semiconductor layer (52) by means of vapor deposition with a growth rate in a range between 1 and 10 nm/s, said semiconductor layer (52) having a Germanium concentration x in a range between $0 < x < 50\%$.

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